

Utah's Development Of A One-Stop Operating System

Utah Workforce System (UWorks)
October 1998—July 2000

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I. OVERVIEW OF SYSTEM INITIATIVE

Our History

The Department of Workforce Services, Utah's Job Connection, was created by Utah Governor Michael O. Leavitt and the Utah State Legislature in 1996, in order to combine and integrate all job placement, job training, and welfare functions in the state. It is the newest department of state government.

In January 1996, Governor Leavitt announced his intention to create a new department of state government. His proposal was a sweeping overhaul and streamlining of several state agencies. He pulled all of the stray parts of welfare and job training into a new Department of Workforce Services. In his words, "One-Stop service centers will better serve both business and individuals, those seeking jobs and those needing workers. We're not talking about a simple course correction or minor reform. We're talking about bulldozing bureaucracies built piece by piece over 40 years. We're talking about agencies and individuals giving up turf and working together. We're talking about building a system that makes sense for employees, employers and those needing public assistance."

He has called the creation of the Utah Department of Workforce Services (DWS) the most significant change in state government since statehood. The department offers a unique private sector approach to the way government does business. Governor Leavitt believes that the best way to serve both the employer and the job seeker is a proactive partnership with the public and the private sector.

Governor Leavitt's administration has worked hard to simplify the complicated welfare and job training system, and Utah is leading the nation in reforms. The new DWS has shifted from a one-size fits all approach, to a custom-fit individualized employment plan for every client. Twenty-five programs from five different state departments were organized into one department. No longer will unemployed Utahns deal with five or six different caseworkers. Job development, job training, and welfare will all merge into one efficient system, so people can get training and jobs without being shuffled all over state government. The

department was established to provide the customers of five separate state agencies with more efficient and effective ways to do business.

DWS serves a variety of customers. Virtually every citizen in Utah can find a reason to use a specific service the agency provides.

Our Department

DWS is the product of Utah's bold vision for the future of quality workforce development, consolidating all employment-related functions into one comprehensive service-delivery system. Now, customers can receive needed services without the confusion and burden of working with multiple agencies.

Administration

An executive director and three deputy directors head the department. Collectively, they provide for the administrative functions of the department. From the executive director through the deputy directors flow the lines of authority that directs the work of all department personnel who cooperatively work together to accomplish the department's goals.

One-Stop Employment Centers

Services are easy to access through the Employment Centers – the connecting point for employers and job seekers. There are convenient locations throughout the state to serve employers and clients.

Computer Support

With the creation of the new department came the legacy computer systems that had supported each of the programs that the department administered.

- Public Assistance Case Management Information System (PACMIS) determines eligibility and processes payments for welfare programs, food stamps, medical programs, and childcare.

- General Unemployment Insurance Development Effort (GUIDE) processes unemployment insurance claims and makes payments to eligible recipients.
- Unified Social Services Delivery System (USSDS) tracks the TANF clients through their employment-related activities.
- Contribution Automated Tax System (CATS) is a new client server system that was put online in 1999 as a Y2K effort. This system processes and handles the unemployment insurance tax collection from employers in Utah.
- Utah Employment System (UTES) processes matches between job seekers and employers that have filed job orders with DWS.
- Remote Initial Claims (RIC) is a call center system used to gather the data for Unemployment Insurance claims both initial and on going.
- JTPA Case Management Systems the department had five different case management systems that had been used at the previous county administered JTPA offices. The data was collected and rolled up to produce the national Department of Labor SPUR report.

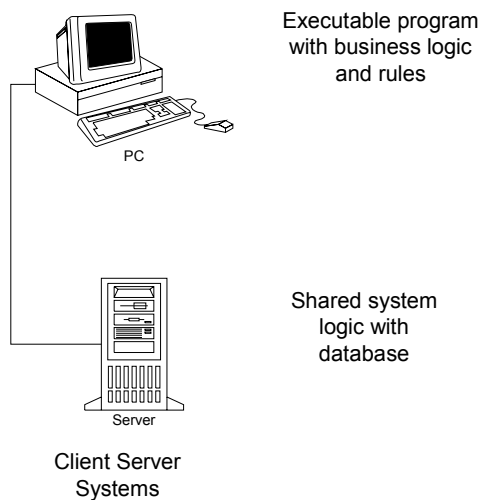
With the passage of the Workforce Investment Act (WIA) in 1998, it was apparent that the Utah Department of Workforce Services was indeed in need of an integrated case management system that supported the all the programs under one system. DWS had begun looking for an integrated solution prior to the passage of WIA, but it was now a requirement to bring all of the training functions of case management together into one system.

Three of the DWS systems that processed and handled case management were not Y2K compliant, and DWS needed to rewrite them or find a replacement system quickly. A group of people from Utah began to contact other states to see if there were any systems in use or development that might meet the needs of the new department. One computer system the group found looked promising, it was called The Workforce Information System of Texas (TWIST) and the Texas

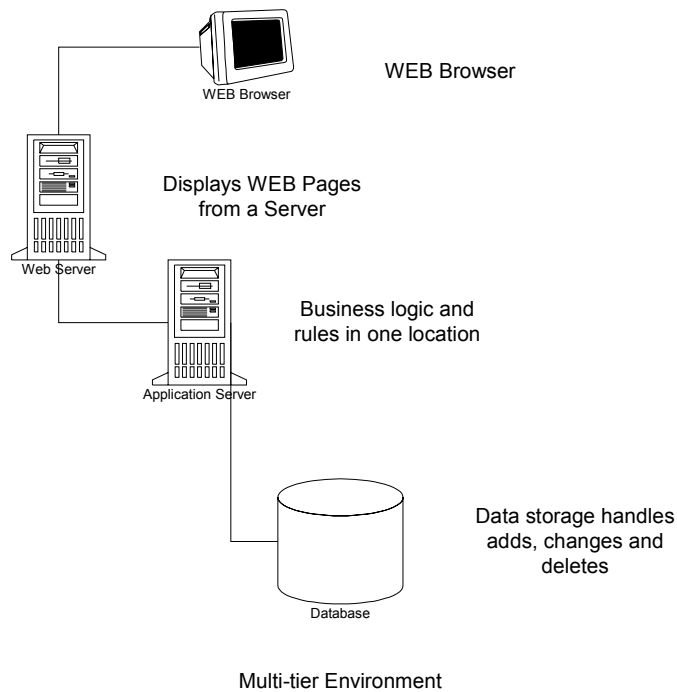
Workforce Commission had received some national awards for the development of an integrated case management system.

TWIST offered some nice features, but it had two major drawbacks: (1) TWIST was built as a client server application and (2) Texas Workforce Commission was having performance problems with their on-line queries for reports.

In 1999, Utah's Chief Information Officer (CIO), Dave Moon, issued a request that all new computer systems developed for the state be a multi-tier environment.



A client server system is a system architecture that attempts to use the processing power and user interface of the individual personal computer (PC) and combine it with the multi-user functionality of the network and the mainframe systems and databases. The client server model provides a great user interface (Windows or Macintosh) that most users understand and enjoy. This architecture requires that portions of the business logic and an executable program reside on each PC. The maintenance of a client server system can be very consuming as upgrades and system modifications occur. Every time a programmatic change is made that upgrade needs to be loaded on each and every PC. Another difficulty with client server systems is deciding at development what portions of the application will reside on the database/server and what will reside on the individual PC.



A multi-tier system architecture is built on the premise that the client interface is a web browser such as Internet Explorer or Netscape. This architecture has also solved the problem of where to locate the database and business logic. Each function is isolated into one piece of hardware/software. This enables quick changes to the application or business logic as it is made in one location and then accessed by web browser through the web pages served up by one or more application servers. The database becomes just a storage environment accessible through the application server.

As you might notice, the multi-tier architecture could also resolve some of the performance issues with on-line queries. However, another new technology (Data Warehousing) solves the problem of performing on-line queries in an on-line production system. The basic concept is that data storage is much cheaper today than it was 15 to 20 years ago. With the cheap storage, we can make a duplicate copy of some or all of the data and use this copy to produce reports and queries into the system.

With the two limitations of TWIST, it was decided that DWS would develop its own system.

UWORKS System Scope

The overall purpose of this project was to design and develop an automated job matching and career counseling computer system that will provide accountability, tracking and reporting of all services provided via the Department of Workforce Services (DWS), Internet (Self Service/No Stop), Employment Centers (Utah's One Stops), and their affiliates. The system is being designed to support Utah and other interested states and/or local workforce investment boards in the delivery of employment and training services. It is critical that the system design is flexible and component-based for ease of expansion and customization. It must also be capable of providing seamless integration with external systems that provide services such as eligibility determination and supporting data such as Local Market Information (LMI), Provider and Course Performance Information.

U-Works Functions:

Self Service and Staff Assisted Components

- Registration

- Initial Screening (Checklist of Services)

- Access to State, Local and National WEB Based Products

- Scheduler (workshops, testing, resources)

- Pre-Application (Partial application for specific programs)

UtahJob.Net Sign Up/Log On Screen

The screenshot shows the Utah Job Net homepage in a Netscape browser window titled "Utah One Stop (UWTEST) - Netscape". The page features the Utah Job Net logo and the text "Provided by the Department of Workforce Services". On the right, there are links for "CAREER INFO NET" and "LEARNING EXCHANGE". The main content area is divided into three columns for Job Seekers, Employers, and Providers. Each column contains a description, links for "Log in" and "Sign up", and statistics for available jobs, job seekers, and service providers.

Job Seekers	Employers	Providers
The perfect place on the web for Job Seekers.	Looking for the right employee, this is the place.	The perfect place on the web for Service Providers.
Registered users Log in	Registered users Log in	Registered users Log in
First Time users Sign up	First Time users Sign up	First Time users Sign up
85474 available jobs	669982 job seekers	535 service providers

UtahJob.Net Job Seeker Account Activity Screen

The screenshot shows the Utah Job Net Job Seeker Account Activity Screen in a Netscape browser window titled "Utah One Stop (UWTEST) - Netscape". The page features the Utah Job Net logo and the text "Provided by the Department of Workforce Services". On the right, there are links for "CAREER INFO NET" and "LEARNING EXCHANGE". The main content area is divided into a navigation bar with links for "Welcome", "Personal Attributes", "Personal Resume", "Job Search", "Feedback", and "DWS Offices". Below the navigation bar, there is a "Welcome to the DWS Web Site" message. The main content area contains an "Activity Summary" table with the following data:

Activity Summary	
The following table represents a summary of your job search activities	
Employer searches selecting your Resume	0
Employers who viewed Resume	0 <input type="button" value="Reset"/>
Date Resume Last Updated	05/04/2000
Date Registration Last Modified	05/09/2000
Date of Last Login	05/09/2000
Saved Searches	3
Job Orders Found By Each Search	49
Job Orders Viewed For Each Search	7

UtahJob.Net Job Seeker Personal Resume Screen

Utah One Stop (UWTEST) - Netscape

File Edit View Go Communicator Help

Utah Job Net
Provided by the Department of Workforce Services

Utah's Career Connection

WELCOME Personal Attributes Personal Resume Job Search Feedback DWS Offices

Choose which Resume Information to review/update:

Desired	History
Objectives	Employment
Job Titles	Education
Desired Work Locations	Certificates
Availability	Skills/Honors/Notes
Desired Salary/Hours	View Resume

Document: Done

UtahJob.Net Employer Job Order Search Screen

Utah One Stop - Microsoft Internet Explorer provided by Compaq

File Edit View Favorites Tools Help

Address http://utahworkweb.wv.ex.state.ut.us/utahdws/utah_dws.main

Utah Job Net
Provided by the Department of Workforce Services

Utah's Career Connection

WELCOME Registration Job Postings New Hire Search Job Seekers Feedback DWS Offices

Enter job seeker search criteria for Job Order Id 121948

O*NET Code 22199 Job Title All Other Engineers

Job Skills

Months Experience 60

Minimum Salary 40000 per Month

Education Level Masters degree

Live at Worksite? ☐ Commission Basis? ☐

Clerical Testing Required? ☐

Driver License Class

Begin Date (MM/DD/YYYY) End Date (MM/DD/YYYY)

Please enter the start date and the end date for this search if you would like to run this every night

Schedule Type		Shifts		Days	
Full Time	<input checked="" type="checkbox"/>	Day	<input checked="" type="checkbox"/>	Monday	<input checked="" type="checkbox"/>
Part Time	<input type="checkbox"/>	Swing	<input type="checkbox"/>	Tuesday	<input checked="" type="checkbox"/>
Duration	Over 150 days/Permanent	Graveyard	<input type="checkbox"/>	Wednesday	<input checked="" type="checkbox"/>
		Rotating	<input type="checkbox"/>	Thursday	<input checked="" type="checkbox"/>
		Split	<input type="checkbox"/>	Friday	<input checked="" type="checkbox"/>
				Saturday	<input type="checkbox"/>
				Sunday	<input type="checkbox"/>

Done

Start GroupWise - Mailbox Microsoft PowerPoint - [u... Presentation Overview do... Utah One Stop - Mic...

Internet 6:18 PM

Staff Assisted ONLY components

Application and Eligibility (Program Specific, can be multiple programs)

Enrollment (Program Specific)

Activities

Initial Assessment

Comprehensive Assessment

Employment Plan

Job Seeker Progress Tracking/Case Management

Post-program termination follow-up services

Provider Information

UWORK Job Seeker Registration Form

The screenshot shows a web browser window titled "UWORKS Training HOST: utstwsntapp8.ws.ex.state.ut.us - Microsoft Internet Explorer". The browser's address bar and menu bar are visible. The web application interface has a blue header bar with the "Utah Works" logo and navigation tabs: "Job Seeker", "Provider", "Employer", "Administrative", "Reports", and "Help". Below the header, there's a toolbar with various icons and a "Ver: 1.1.9" label. The main content area is titled "UWORKS Training" and displays the "Job Seeker Registration Form". The form is divided into several sections: "GENERAL" (selected), "Additional", "Employment", and "Career". The "GENERAL" section contains fields for "SSN" (789-09-8976), "Street Address" (157 5th Street), "Mailing Address", "First Name" (Cosmo), "Last Name" (Kramer), "Date Of Birth" (02/01/1951), "Gender" (Male), "Seeker Status" (Active), "Agent Office" (SALT LAKE DOWNTOWN), "Agent Last Name" (Tester), "US Citizen?" (Yes), "Username" (UNEMPLOYED), "Password" (*****), "Mailing City" (NEW YORK), "Mailing State" (NY), "Mailing Zip" (10005), "Email Address" (cosmomania@aol.com), "Phone" ((212) 875-5788), "Ext" (718) 875-0987, "Alternative Message Phone", and "Ethnicity" (ASIAN, WHITE). The form is displayed in a standard web browser window with a status bar at the bottom showing "Applet started." and "Internet".

UWORKS Assessment Form

UWORKS Training HOST: utstwsntapp8.ws.ex.state.ut.us - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Job Seeker Provider Employer Administrative Reports Help Window

Utah Works Comprehensive_Assessment Ver: 1.0.4

SSN 789-09-8976 Seeker Cosmo Kramer

Ed History ED ISSUES Housing Trans Legal Health Treatment

Assessment

Assessment Creation Date 05/27/2000

Counselor

Tommy T. Tester

Learning Disabilities

Does Seeker Indicate Any Learning Disabilities? ☐ Yes ☒ No

Language

Seeker's Primary Language Japanese

Is Seeker's English Speaking Ability Limited? ☐ Yes ☒ No

Basic Education Skills

Does Seeker Lack Basic Education Skills? ☐ Yes ☒ No

Go To Test Scores

Training

How to be at your best when working as a Tour guide

Training Programs Not Completed

Interests, Aptitudes & Need For More Training

Enjoys working in a fun filled environment - needs to certified in CPR to pursue Amusement Park work.

Pell Grant

Pell Grant Status Yes

Year 2000

Amount \$2,500.00

Applet started. Internet

UWORKS Assessment Summary Form

UWORKS Training HOST: utstwsntapp8.ws.ex.state.ut.us - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Job Seeker Provider Employer Administrative Reports Help Window

Utah Works Assessment_Summaries Ver: 1.0.4

SSN 789-09-8976 Seeker Cosmo Kramer

INITIAL SUMMARY Comprehensive Summary Health/Treatment Summary

Assessment Creation Dates

Employment	05/27/2000	Go To
Family Situation	05/27/2000	Go To
Financial **	05/2000	Go To
Education	05/27/2000	Go To
Housing	06/01/2000	Go To
Transportation	06/01/2000	Go To
Legal		Go To
Health	06/01/2000	Go To
Treatment		Go To

** Month & Year of most recent assessment

Counselor

Tommy T. Tester

Primary Phone (801) 526-5815 Ext

HLCI 1 PACMIS Case #

Print Initial Assessment

Employment Assessment

Is Seeker Currently Employed? ☐ Yes ☒ No

Reason For Leaving Most Recent Employment Still Employed

Is Seeker Interested In Non-Traditional Employment? ☐ Yes ☒ No

Family Situation Assessment

Is Seeker A Victim Of Domestic Violence? ☒ Yes ☐ No

Does Anyone In Seeker's Household Have Special Needs? ☒ Yes ☐ No

Has Protective Services Ever Contacted Seeker Concerning A Child In The Seeker's Care? ☐ Yes ☒ No

Does Seeker Need DWS Child Care Supportive Services To Participate In Employment Plan Activities? ☐ Yes ☒ No

Financial Needs Assessment

Month & Year Of Most Recent Assessment	05/2000	Total Monthly Resources	\$127.00
Net Difference	-\$868.00	Total Monthly Expenditures	\$995.00

Applet started. Internet

UWORKS Employment Plan Form

System Objectives

The following factors were identified as critical in creating a system that will be successfully adopted by the user community.

The UWORKS system will be designed in such a way as to support the use of most system components by both self-service customers and staff. This will encourage self-sufficiency by providing customers with self-service options when possible.

The UWORKS system will be designed around a multi-tier architecture accessible through a WEB browser graphical user interface that utilize pull down menus and/or check boxes to reduce the need to look up code values.

The UWORKS system will support a service driven process not an eligibility driven process, while recognizing that eligibility for specific programs will be required in order to offer certain services.

The UWORKS system will facilitate the service coordination process of identifying and linking customers with needed services.

The UWORKS system will be flexible and adaptable to quickly respond to legislative, policy and data changes.

Using either in house or contracted programmers states and localities will be able to modify arrangement of field and select field that are not to display.

The UWORKS system will easily interface with other systems (e.g., eligibility systems, state welfare systems, education systems, and economic development systems) that compliment employment and training efforts at local levels.

The UWORKS system will eliminate the redundant collection and data entry of customer information.

The UWORKS system will protect customer privacy rights while allowing the efficient sharing of required information between state and community agencies.

The UWORKS system will provide standardized collection of data required for reporting purposes while allowing community partnerships operating flexibility.

The UWORKS system will be delivered with complete documentation that is accessible using a standard browser from a central location.

UWORKS System Timeline

Review TWIST System in Texas	August 1998
Request for Information RFI	September 1998
Application Development Shootout	October 1998
Vendor Selection	November 1998
Utah visit with DOL	November 1998
Utah joins efforts with MN and NY on OSOS	December 1998
Requirements Document and Project Plan Due	March 1999
Combine forces with AJB/OSOS development	April 1999
Complete System Requirements	May 1999
Missed System deadline # 1	August 1999
Unable to sign contract with Oracle and AJB	September 1999
Utah issues withdraw letter to DOL	Sept. 21, 1999
Utah signs contract with Oracle for UWORKS	October 1999
Fix OSOS requirements back to Utah's needs	November 1999
UWORKS Development begins	December 1999
Y2K Backup System used for WIA	January 2000
Training of Utah staff on Oracle Tools	Jan--Feb 2000
UWORKS Development	Jan--Apr 2000

UWORKS Testing	Mar--May 2000
UWORKS Training	May--June 2000
UWORKS Conversion	July 2000
UWORKS Case Management Production	July 5, 2000
UWORKS Financial in production	July 25, 2000
UWORKS – PACMIS Interface	August 8, 2000
Decision to re-write UWORKS Job matching	October 2000
UWORKS Version II Team selected	December 2000
Version II prototype approved	January 2001
UWORKS Consortium states take version I	February 2001
<ul style="list-style-type: none"> ○ Alabama ○ North Dakota ○ Montana ○ South Dakota ○ Washington 	
UWORKS version II implementation scheduled	July 2002

II. SYSTEM DEVELOPMENT OBSTACLES / RESPONSES

Mixed Funding Sources

The UWORKS project ran into some early obstacles regarding the funding of the system development. The application had some very specific requirements regarding the ability to utilize numerous funding sources for the customers DWS serves. As you learned in the early parts of this paper, the department was set up to serve customers individually and not proliferate the bureaucracy that had been used in the past. A real problem with a joint venture across the federal funded programs is getting the federal agencies to agree on a funding methodology.

In the case of this project, we were using U.S. Department of Labor (DOL) One Stop formula grant funds, U. S. Department of Health and Human Services Temporary Assistance for Needy Families (TANF) block grant money, and 50/50 matching dollars from the U. S. Department of Agriculture Food and Nutrition Services (FNS) for the food stamp education and training program.

Regarding system development, each federal agency has its own process for you to follow to utilize its funds. The difficulty comes into play as you try to use multiple funding sources to build one integrated system. The term used to allocate expenses is called a fair share allocation, and it must be approved by each federal agency before any dollars can be spent. After about 6 months of negotiations, an allocation model that would distribute expenses based on the individual program case counts was agreed upon by all parties. This appeared to be the first time that the DOL and FNS had worked together on an integrated system as it took a lot more time and effort than was originally estimated.

Ongoing maintenance of the UWORKS system will also be handled utilizing a quarterly count of cases in the various programs, and the distribution of those expenses will be based on the specific program and then tied to the individual funding source.

New Program Specifications

DWS had tremendous difficulty designing the new computer system, which included new DWS business processes and was compounded by the delay in federal regulations. Maturing DWS business processes combined with changes required by WIA regulations proved difficult and, as a result, caused some system development delays.

Through this experience, I would strongly advise against designing a new computer system with two moving targets. One is bad enough when you are trying to do business process redesign and build a new computer system, but the complexity of a brand new federal program was way more than we expected. Detailed checklists and standards documents defining expectations would have been very helpful. I will touch on this later in the recommendations section of this paper.

Political Impact

The development of a new computer system in government always has political implications. This project was not any different, although there were added political pressures that I will briefly discuss. One of the early political impacts to this project was that Utah's agreement to be an early implementer of the WIA program, and it was very apparent that the old systems would not support the new program.

A second political event occurred when DOL representatives approached Utah about combining the ongoing Utah effort with another multi-state consortium project developing a national product referred to as Workforce Information Network System (WINS). This consortium process can work but it does slow down the development work while agreements and differences in business processes and cultures are worked out. As a note of advice, it is imperative that a contract or an agreement letter is signed by all parties involved detailing out what

the expectations are regarding funding required, ongoing maintenance, and ownership and ability to modify the computer system.

DWS's decision to withdraw from the consortium was a difficult decision. Below is the letter that was sent from DWS Executive Director Robert Gross to Raymond Uhalde, Deputy Assistant Secretary, DOL detailing the reasons DWS chose to leave the consortium and develop the UWORKS system on our own.

"September 21, 1999

Raymond J. Uhalde, Deputy Assistant Secretary
United States Department of Labor
Employment and Training Administration
200 Constitution Avenue, NW
Washington, D.C. 20212

Dear Mr. Uhalde:

This letter is to inform you of the Utah Department of Workforce Services' (DWS) intent to withdraw from the current state consortium developing America's Job Bank One Stop Operating System (OSOS). For the past nine months we have been participating with America's Job Bank Service Center (AJBSC) in the OSOS project design. Unfortunately, it has recently become evident that DWS must resume direct control of the development of an OSOS computer system. We have reached the conclusion that this national effort is not responsive to DWS' needs for the following reasons:

- Lack of clear project coordination at the U.S. Department of Labor (DOL)/AJBSC level
- Repeatedly missed implementation and project plan deadlines
- Concern regarding the level of customer satisfaction and services received from AJBSC
- Escalating state cost without a guarantee that DWS will receive direct system access for maintenance and enhancement purposes

DWS' concerns were essentially articulated and validated by Minnesota Commissioner Earl Wilson's August 30, 1999 letter to DOL regarding the implementation of Workforce Information Systems (WINS) and the development of OSOS for his state.

DWS entered this consortium after a visit from [a DOL representative] in November of 1998. At that time he expressed an interest in DWS' ongoing internal efforts to develop a computer system to support the employment and training services of DWS, especially in developing a user-friendly system for front line staff. This effort included DWS' selection of Oracle as a required platform for development, and a contract with Oracle Corporation for a system requirement analysis. [The DOL representative] suggested that DWS join with his efforts to expand the WINS into a fully integrated OSOS. As part of our agreement to join in this effort, DWS clearly explained to [the DOL representative] our innovative integration of federal and state ETA programs, along with our welfare reform initiatives. [The DOL representative] agreed that in exchange for our participation, DWS would receive a system supportable by our information technology division to meet our service delivery needs. He also indicated that DWS should seek additional funding for those areas falling outside the jurisdiction of DOL activities. We readily expressed our interest and intent to proceed.

In DWS' efforts to help expand WINS into OSOS, we focused on the following areas:

- **System Design:** Because DWS had already contracted with Oracle for the development of a software system requirements document, we offered the use of Oracle's services to AJBSC, Minnesota and New Jersey as a starting point in the development of a national OSOS. AJBSC accepted this proposal and has since approved and copyrighted the OSOS software requirements document produced by Oracle under a State of Utah contract.
- **System Development:** AJBSC proposed that OSOS be developed in a "native" HTML browser-based system, similar to AJB 4.0. DWS determined that a "native" HTML browser system would not best meet the needs of one of our most important customers, front line staff. For this reason, DWS insisted that a second browser-based OSOS platform be developed using the Oracle software application and development tools. In a joint review with DWS' Chief Information Officer, these software rapid application design and development tools scored highest when compared with the OSOS system requirements.
- **System Maintenance:** The OSOS requirements specify that maintenance and development of the system will occur at the national, state, and local Workforce Investment Board (WIB) level. States and WIBs MUST have the ability to make modifications and enhancements to OSOS that do not adversely affect the connectivity and interfaces to America's Career Kit. DWS has attempted to point out, with little success, that the current

OSOS data model, documentation standards (data dictionary, APIs, etc.), and lack of redundancy features will restrict states usability, maintenance, and enhancement capabilities.

These efforts reflect a substantial amount of time and money invested by DWS in the development of an OSOS system that benefits all states. We simply cannot continue to participate in the current AJBSC OSOS arrangement where we have limited authority in determining how a mission-critical computer system is developed, delivered, and maintained. While we have chosen to leave the AJBSC OSOS development effort, we intend to build upon our efforts already put forth. Because of the importance of a system that helps states and WIBs implement their employment and training initiatives, we will continue to share our Oracle platform development efforts. DWS hopes that DOL will continue to support the needs of states for flexibility in developing these systems.

We have recently learned that [the DOL representative] will be leaving DOL shortly. We have enjoyed our association with him and the cooperation he has demonstrated toward DWS. We do believe that the recent misunderstandings have occurred elsewhere in the DOL and AJBSC organizations. Our decision to withdraw should in no way be interpreted as a statement of DWS' unwillingness to work with [the DOL representative's] successor on this or future projects. We, in fact, look forward to such opportunities. Our decision to withdraw has been painful and has been made after the most careful consideration.

Should you have questions or wish to discuss this further, please feel free to contact me at (XXX) XXX-XXXX. Thank you for your time and consideration.

Sincerely,

Robert C. Gross
Executive Director

Lastly, the high visibility of a project like this pushes individuals to be very competitive and push objectives and timelines harder than is reasonable. Everyone involved is consumed by the project and competition to complete or be the first entity to deliver a product. Because of the aggressive pressures, sound project management objectives and principles can be overlooked in the heat of the competition.

New Technology

Technology vendors always sell their products as being able to do anything and everything. The real proof in the ability of the technology comes when you try to put the new technology through its paces. In this project, we were required to use the newest multi-tier architecture approach. Honestly, this new technology had only been on the market for less than a year, and we were all caught up in the Internet frenzy of 1999. You then add to that the difficulty of the ongoing browser wars (Microsoft Internet Explorer vs. Netscape) neither product has been able to agree on true standards and they leap frog each other with special functions that are not supported universally. An additional level of complexity is the high user expectation of a Windows or Macintosh system interface and the inability for the WEB browser to support the users expected functionality.

DWS chose to use the Oracle suite of development products, as it seemed to meet our specific needs for a full Windows type functionality along with the ability to produce generic HTML code for the self-service customer. Oracle also provided a complete technical solution from the backend database to the software development environment and the middle tier tools we needed to utilize the new web technology.

Things didn't quite work as well as the vendor had told us, but the application was put into production after a lot of sweat and hard work by both the vendor and DWS employees. The job-matching portion of the UWORKS system was never able to match the 2 to 3 second performance levels of the existing mainframe system UTES. Thus its implementation was split out from the case management system, which went into production in July of 2000.

DWS is currently re-working the employment exchange portion of UWORKS and plan on releasing version II of UWORKS in July 2002. The new version of UWORKS will meet the high performance required of the employment exchange process and also include enhancements to the case management functions that have been requested by the DWS employees.

Competition to Produce First OSOS

I mentioned this earlier, but there was a lot of internal and external pressure for Utah to produce the first WIA computer system. Two former employees of Utah actually retired from their DWS positions and joined the contractor working on the national OSOS. When Utah broke away from the consortium of New Jersey and Minnesota, the pressure intensified and there was an element of competition to see who would produce the first system, and which system, OSOS or UWORKS, states would choose to use.

After reading the withdraw letter, you might have noticed that Minnesota actually withdrew before Utah. The states of New York and Nevada joined the modified consortium and started where the others had left off.

In the meantime, Oracle was marketing UWORKS to other interested states with a major selling point being that the source code was readily available and the application was free to any state or government entity that wanted it.

UWORKS was able to provide a functioning case management system first, although they did not get the full system functionality of the job matching system installed and implemented. To the best of my knowledge, New Jersey, Nevada, and New York still have not implemented the original OSOS system for WIA case management.

DWS has transferred the UWORKS source code in the Oracle repository to the following states, Alabama, Montana, North Dakota, South Dakota, and Washington. The case management system is in use in Alabama and Washington

will bring their system up in fall of 2001 followed closely by South Dakota and Montana.

Technology Transfer

Technology transfer is a difficult process. At DWS, we had four software developers, one database analyst and two business analysts that were assigned to the UWORKS project. The four developers were very proficient in the UTES system, which was running on a mainframe using Adabas as the database and a programming language called Natural. One of the developers had been on the original team that developed the UTES system and the rest had been doing maintenance for the last 3 to 4 years. The two business analysts were fairly new to information technology but their expertise was in understanding the business process and writing system specifications and testing plans. The database analyst was a training process for an IT manager that had stepped down. Due to government salary range limitations, database analysts (DBA) are very hard to find and keep. Contract DBA's currently demand rates from \$150 to \$200 per hour.

The training plan for DWS employees was developed using an Oracle curriculum. It included 5 weeks of classroom training for the software developers with the Oracle development products and 3 weeks of training for the business analysts; the DBA attended 7 weeks of training. In addition to the classroom training, it was expected that each DWS employee would be working hand in hand with an Oracle contractor as the system was being designed and built.

The transition or ability for individuals to learn new technology is a personal objective each person must aspire to obtain. It will not happen by chance; you need to find mentors that want to train and mentor others and you must find team members that have a passion for learning. It is not an easy process to move from one technology to another. Statistics I came across refer to a 40 percent success rate when programmers transition from one technology to another. In other words 6 out of 10 programmers are not able to go from a mainframe structured

programming environment to a an object oriented forth generation language (4GL).

Don't give up on early failures but you need to monitor progress and push employees to venture out on their own to learn more about the new technology and tools. Also, do not underestimate the time and effort it will take to complete the technology transfer and I can personally vouch for the 40 percent figure. Only one of the four employees had fully made the transition to the new technology. Prepare for those types of numbers regardless of how good your team is.

Purchasing RFP process

When contracting for software development there are two primary methods that can be used fixed price or time and materials.

The fixed price model usually starts with a request for proposal (RFP) and the agency spends approximately 4 to 6 months developing a detailed RFP that outlines every function and deliverable of the computer system. The agency then releases the RFP and reviews bidders based on a predetermined set of criteria. A vendor is selected and a fixed price is agreed upon. The vendors usually pad fixed price contracts by anywhere from 20 percent to 40 percent to cover system changes, unforeseen modifications and overhead. With a fixed price contract there is usually a large portion (up to 40 percent) of the money withheld until the system is passed off or meets the expectation that were outline in the contract. I have never seen a fixed price contract with a full-blown RFP started in less than 5 months. They take a lot of time and effort to get started.

The time and material contract is basically set up so that you pay an hourly rate for individuals based upon their specific skills and cover expenses on a receipt basis as materials are needed. In Utah, we have a number of vendors that are already pre-approved on state contracts for programming and system development work on a time and material basis. The time and material contract

does require a scope of work and progress is evaluated on a biweekly basis as invoices are processed.

DWS chose to use a time and material contract on the UWORKS project primarily based on the previous work completed in the design phase, likely cost savings, and tight time restraints requiring the system be completed by July 2000.

Both options have their benefits and disadvantages, but I will not be going into detail in this document. In hindsight, I would not recommend that you forgo the price discount by losing the benefits of a contractual agreement with definite deliverables and a not to exceed cost. Most vendors will figure out ways to make more money on a project of this size, but the fixed price with definable deliverables seems to hold them to the fire a bit more.

At DWS we continually looked at ways to shorten the time frame on this project such as avoiding the RFP process. We should have realized the time frames were unreasonable and utilized the more formal RFP process and a fixed price contract.

Software Licensing

On this project, I learned more than I ever wanted to know about intellectual property when it comes to software development and licensing. One of the primary objectives of DWS regarding systems development is that at the completion of the system, it belongs to the state to maintain and modify as our business processes change. This objective not being met was one of the major reasons why DWS split from the DOL consortium. Applied Theory's agreement in its contract with DOL was that the vendor solely owned the application software and that the vendor would handle all changes or modifications in the future. DWS was familiar with this process on some "Off the Shelf" software used in the old JTPA program, and we were never able to get all the system changes we needed. We were always on the waiting list and had to settle for what the next release included.

Following our objective of ownership of the source code, the negotiation with Oracle on UWORKS was very long and tedious. We continued to view the UWORKS as a software application that could be shared in its entirety with any other government entity that wanted it for free with full access to the source code. The term public domain software continued to come up in the negotiation, specifically because we were spending federal dollars on the system. Oracle seemed to be able to hold tight on the intellectual property rights regardless of how the application was paid for.

In the end, DWS was able to come to agreement with Oracle that UWORKS would be jointly owned and transferable to any government agency at no cost. As an incentive for DWS to recommend the application and proliferate the sell of Oracle software and tools, DWS was given the ability to collect royalties of 10 percent up to \$ 100,000 per state that transferred UWORKS and then purchased Oracle software and tools. To date DWS has collected approximately \$ 320,000 and this money was applied directly to the development of the UWORKS application. This savings was distributed using the same cost allocation methodology (case counts) used to build the system.

Contract / Vendor Management

You could read 100 books on computer system development and contractor management and still not cover everything that can arise in a project of this size. I could go on and on about the daily contract/vendor management that needs to take place but I will spare you. Read a current book on project management. I will offer three project management requirements I learned on this project.

1. If you suspect a problem with contract developers there probably is one, act quickly and resolve the problem by getting someone else. Things will not improve over time.

2. Is similar to #1 but regarding the vendor supplied Project Manager (PM).
Make sure you check references and get an experienced PM. If the PM cannot handle the job, get rid of the PM as quickly as you can.
3. When you are doing application walk through and reviewing developer's prototypes have your staff run the application. Most often the developers know exactly what they programmed the system to do and will not allow you to see the problems unless you have someone else highlight them.

Run a tight ship and get the very best professionals you can afford on the project. Do not settle for second best.

Project Management

I have covered the topic of PM in the previous areas. Regarding PM, you need to get the very best internal PM you have and give him or her the support and ability to make decisions. PM's must be held accountable, but with the accountability also goes the ability to make decisions and actions regarding budget, personnel and time frame commitments.

III. ACTIONS THAT COULD FACILITATE STATE EFFORTS TO MODERNIZE SYSTEMS

Sharing of Code

The ability to share computer code and logic would save government agencies millions of dollars in development costs alone. State and local systems that are providing federal programs are at least 60 percent to 70 percent similar. If the ability to share code and system logic was clarified, money could be saved.

The problem seems to occur when you get different answers from the different federal agencies regarding software that was instrumental in development utilizing federal dollars. As an example, DOL has a contract with Applied Theory, Inc., through New York State that gives complete software ownership of the America's Job Banks and OSOS software to Applied Theory, Inc. In contrast, the U.S. Department of Health and Human Services' Financial Assistance Management Information Systems (FAMIS) -- of which Utah's PACMIS system is an offshoot -- is in the public domain and has been transferred to many different states.

A clear definition needs to be put out by all federal agencies regarding the utilizing of federal dollars and public domain software.

System Certification Specifications

It would be advantageous if all federal agency system offices had a certification process for system development. Based on my experience, the Department of Health and Human Services had a certification process for their FAMIS systems. The DOL has not produced a certification criterion for either their unemployment systems or their employment exchange or WIA systems. The certification criteria would need to be available to the states and local government agencies when they prepare the RFP's, and it should be determined that 40 percent or more of the funding is dependant on the passing of the federal certification.

Need for a National Clearinghouse of Technological Initiatives

Each federal agency has some type of national clearinghouse, but they do not seem to cross agency boundaries. The ability to go to one location and find out about all of the computer system project initiatives would save time and money on the local and state projects that are undertaken.

New Technology

Another recommendation I would like to make is that as software development continues to evolve into the Object Methodology, a central repository for these objects could be maintained. I would like to see a national library of objects.

An object can be considered a portion of software code that is designed to do one function with predefined inputs and outputs. Utilizing object development is kind of like building computer systems with Lego blocks. Each object can be used and even modified, but the entire system is made up of small reusable components or objects. The major advantage of using objects is the ability to reuse them and also make minor modification to perform a similar function but not have to completely rewrite the program from scratch.

In my mind, there would be a repository of software objects using Java and XML programming that could be reused all across the country and save significant time and money in software development. One group that comes to mind that I believe could handle this proposal is the Information Technology Support Center (ITSC) sponsored by DOL. The ITSC is a non-profit entity that has sponsorship from DOL, Maryland, Mitretek Systems, Lockheed Martin Corporation, and the University of Maryland. As I am informed, ITSC was chartered specifically to assist states with the Unemployment Insurance software applications and computerized call centers. They have a very strong reputation of being able to coordinate and implement new technologies.

Project Management Training for Government Projects

The last recommendation I will make is that a training entity be founded to provide hands on project management training for PM's of government systems. The Project Management Institute (PMI) comes to mind as a potential trainer and certifier of common knowledge and abilities. I believe it would be well worth the initial expense to require all federal funded software developments to be lead by a certified project manager. The certification process does not guarantee success but it could go along way in improving the success of software projects.